SONY

LMD-1950MD

19-inch Medical LCD Monitor

The new LMD-1950MD is a medical-grade 19.1-inch LCD monitor, specifically designed for surgical endoscopy applications for perfect observation and it is ideal for using in operating theatres. It meets the stringent medical safety and EMC requirements. The LMD-1950MD incorporates a superb quality SXGA (1280 x 1024) LCD panel that provides extremely high level of brightness, contrast and colour depth. In addition to the use of Sony original X-Algorithm technology for I/P conversion, the monitor incorporates full 10-bit digital video signal processing, which enables the unit to deliver natural images with accurate colour reproduction. The LMD-1950MD is DICOM compliant. What is more, video signals are reproduced at an extremely high resolution of 700 TV lines, providing detailed images - an essential requirement for endoscopy applications. Additionally, this monitor provides superior versatility with a variety of analogue and digital signal input capabilities both for today's standard and tomorrow's high definition format. Various analogue and digital computer formats complement the video format. The LMD-1950MD has been designed in a sealed chassis without air vents to prevent any foreign matter, which exits the unit to spread contaminants. With other convenient features such as User Memory, Selectable Scan Modes, Auto Chroma Phase Adjustment and parallel/serial interfaces for remote control, the monitor is an ideal choice for surgical endoscopy applications.

Features

Excellent picture reproduction (X Algorithm)

LMD-1950MD provides sophisticated I/P (interlace to progressive) conversion using X-Algorithm technology. This combines the pixels above, below and in the diagonal direction of the moving picture part, and then inserts a natural pixel to create the absent lines. The result is much smoother image reproduction for both moving and static picture areas.

Picture Delay minimum mode

LCD panel has certain level of the picture delay factor, due to the response time of LCD panel device itself and the data calculation time of the signal process such as I/P conversion. This is already well known as the basic nature of all LCD monitors. But the user may wish to obtain much lower picture delay rather than higher picture quality. To satisfy this demand the Picture delay minimum mode provides the option to trade picture quality against lower picture delay.

Excellent Brightness and Contrast

While conventional LCD monitors can tend to be dark, the LMD-1950MD provides high-brightness and high contrast images by use of super wide aperture LCD panels. In addition, the use of precisely manufactured RGB colour filters allow these monitors to reproduce colours with stunning depth and saturation - creating highly natural images.

Wide Viewing Angle

The LCD panel has a wide viewing angle of 170 degrees, horizontally and vertically, with minimal reduction in picture contrast, enabling images to be viewed from various positions and angles.

The User Memory

The User Memory functionality provides the capability of saving 20 patterns of memory settings. Doctors can easily set, save, and recall their preferred picture setting using an assigned user name. The following parameters can be memorized to user memory: Colour temperature, Brightness, Contrast, Chroma, Phase, Aperture, Gamma, Aspect, Scan, Picture Delay Minimum, User Memory Name, User Colour Temperature. In addition factory default settings can instantly be recalled by the touch of two buttons.

Auto chroma/phase function

The chroma and phase of the decoder are automatically adjusted with the auto chroma phase function.

Three Colour Tally

The tally lamp can be lit up via a parallel remote connector and the status identified by three colours, red, green or amber.

Parallel Remote (Modular 8-pin)

Parallel Remote Control and Tally can be controlled via a modular 8-pin connector, and the pin assignment can be set from the On-Screen Menu. Users can control the tally lamp, select Input and activate Underscan mode or Overscan mode.

Colour temperature Adjustment

The colour temperatures can be selected among four preset data (HIGH, LOW, LOW2, LOW3) and the USER data can be set between 5000K and 10000K.

Smart APA

Perform an automatic adjustment to achieve the clearest picture while a signal is input from the HD15 input connector.

Versatile Scan Mode

The LMD-1950MD offers a wide choice of displaying images such as Overscan, normal scan, underscan and native picture reproduction. These various options allow doctors to decide what is the most suitable and convenient mode for them.

Native Scan Mode

Can be selected when displaying images generated by HD signals (1080i/720p). This mode performs pixel-to-pixel mapping without scaling when processing high-definition signals to provide a native HD image on the monitor. The centre area of the image, which is most vital during endoscopic applications, is displayed on the monitor.

Key Inhabit

Possible to lock the setting so that they cannot be changed by an unauthorized user.

Benefits

Sealed chassis and DC power voltage ideal for use in OR

The LMD-1950MD has been designed without air vents to prevent foreign matter from entering or exiting the units. Moreover it has DC power voltage to allow installation on surgical arm.

Super picture performance with advance technology

10-bit LCD panel provides surgeons and other clinicians with superior quality reproduction of still and especially moving images, plus a reduction in the need for manual picture adjustment as well as rugged construction to cope with the special demands of medical environments and lower total cost of ownership.

Versatile Video and Computer Inputs

The LMD-1950MD can accept a variety of video signals ranging from SD to HD, as well as PC signals via its DVI-D or HD15 connectors. In addition to its standard inputs, five different optional input adapters are offered for use in its two expansion slots. This allows many signal sources from a variety of equipment to be connected and monitored simply by selecting them with the input button on the front panel. Simultaneous accessibility to various inputs is a strong added value of Sony LMD monitors.

Easy Migration from SD to HD.

Reproducing high quality images in HD is not an issue for the LMD-1950MD. This monitor allows you to enjoy today HD images through the analogue video inputs or prepare tomorrow for an

easy migration by using the optional plug-in HD/SD-SDI digital video decoder board.

AR-Coated Protection Panel

The LMD-1950MD incorporates an extremely bright 19-inch LCD panel with a 4:3 aspect ratio and a robust multi-layer AR-coated protection layer, which minimises the damaged caused by scratching the panel. The AR coating also reduces the reflection from ambient light to a minimum. As a result when used in bright lighting conditions, high contrast is maintained even in dark areas of the picture.

Compact and Lightweight

Thanks to the thin and lightweight LCD panel, LCD-1950MD is much shorter in depth and lighter in weight than a conventional CRT monitor. It results in greater operational flexibility for surgical applications.

Operational Convenience

The User Memory functionality provides the capability of saving 20 patterns of memory settings, what provides doctors to easily set, save, and recall their preferred picture setting using an assigned user name.

VESA Mounting

LMD-2140MD can be used under various lighting conditions and in numerous ways. It can easily be mounted on a wall, ceiling or an extended arm as well as put on a cart by using its stand foot, what makes its use even more convenient for surgeons and other clinicians.

Technical Specifications

--Picture Performance--

LCD Panel Type	a-Si TFT Active Matrix LCD with an AR-coated protection panel
Resolution	1280 x 1024 dots (SXGA)
Picture Size (H x W) (Diagonal)	Approx. 376 x 301 mm (14 7 /8 x 11 7 /8 inches) Diagonal 482 mm (19.1 inches)
Aspect	5:04
Viewing Angle	89°/89°/89°/89°(typical) (up/down/left/right contrast>10:1)

--Input / Output--

Input	Composite BNC (x 1) 1.0 Vp-p ±3 dB, sync negative Y/C 4pin Mini DIN (x 1) Y: 1.0 Vp-p ±3dB, sync negative C: 0.286 Vp-p ±3dB (NTSC) / 0.3 Vp-p ±3dB (PAL) Component/RGB BNC (x 3) Component Y: 1.0 Vp-p ±3 dB Pb, Pr: 0.7 Vp-p ±3 dB RGBÂ G: 0.7 Vp-p ±3 dB, Sync on G 0.3 Vp-p B: 0.7 Vp-p ±3 dB R: 0.7 Vp-p ±3 dB Ext. Sync BNC (x1) 0.3 - 4 Vp-p ±bipolarity ternary or negative polarity binary Computer DVI-D: TMDS (Single Link) HD15 Analog RGB: HD D-sub15pin (female); 0.7 Vp-p, 75 sync positive (R, G, B)
Remote	Parallel Modular 8 pin (Assignable)ÂSerial RS-232C (serial remote), D-sub 9-pin
Output	Composite BNC (x 1), Loop-through, automatic 75 Y/CÂ 4pin Mini DIN (x 1), Loop-through, automatic 75 Component/RGBÂ BNC (x 3), Loop-through, automatic 75 Î Ext. SyncÂ BNC (x 1), Loop-through, automatic 75

--General--

Power Consumption	Maximum: Approx. 66 W (with 2 x BKM-229X) Standard: Approx. 59 W (without optional input adaptor)
Power Requirement	DC 24 V 2.8 A, AC 100 to 240 V ±10%, 50/60 Hz
Operating Temperature	0 to 40°C (32 to 104Â°F)
Operating Humidity	30 to 85 % (no condensation)
Storage & Transport Temperature	-20 to 60°C (-4 to 140°F)
Storage & Transport Humidity	0 to 90 % (no condensation)
Operating / Storage / Trans. Pressure	700 hPa to 1060 hPa
Dimensions (W x H x D)	442 x 403 x 118 mm (17 1 /2 x 15 7 /8 x 4 3 /4 inches)
Mass	9.7 Kg (21 lb 6 oz) with 2 x BKM-229X

Supplied Accessories

	Sales Companies Guide
	When You First Use The Monitor booklet
	Quick Reference
	Using the CD-ROM Manual
	Warranty Card
	CD-ROM
	Instructions for use
	DC cable
	AC plug holder
	AC power cord
	AC adaptor

Accessories

Option Boards

BKM-229X

Analogue component input adaptor
for LMD monitors

Monitors

BKM-220D

4:2:2 Sdi Input Adaptor

BKM-243HS

HDSDI/4:2:2 SDI Input Adaptor